

ADDITIONAL NOTES ON THE GENUS BOUCHEA. I

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Explanation of the abbreviations employed for the names of herbaria in these and subsequent notes will be found in my booklet entitled "A list showing the location of the principal collections of Verbenaceae and Avicenniaceae", pp. 1--3 (1942), and its Supplement 1, pp. 1--2 (1947), and in Phytologia 3: 179--180 (1949), 3: 321 & 382 (1950), 3: 491 (1951), and 4: 295 (1953).

BOUCHEA Cham.

Synonymy: Denisiaea Neck., Elem. 1: 306, nom. rejic. 1790. Bouchéa Cham., Linnaea 7: 252 & 771. 1832. Lomake Raf., Aut. Bot. 73. 1840. Bonchea Cham. ex Small, Man. Southeast. Fl. 1141 & 1517, sphalm. 1933. Bouchia Cham. ex Moldenke, Prelim. Alph. List Invalid Names 8, in syn. 1940. Bruechea Shafer and Buechea Shafer ex Moldenke, Alph. List Invalid Names Suppl. 1: 3, in syn. 1947.

Literature: Pluk., Alm. 382, pl. 32, fig. 1. 1696; Sloane, Catalog. 1696; Sloane, Hist. Jamaica 1: 172, pl. 107, fig. 2. 1707; L., Sp. Pl., ed. 1, 19. 1753; Jacq., Icon. Plant. Rar. 2: pl. 208. 1788; Jacq., Collect. 2: 301. 1788; Gütt. Gel. Anzeiger, p. 1600, Oct. 3, 1789; Neck., Elem. Bot. 1: 306. 1790; Lam., Tabl. Encycl. Méth. Bot. 1: 59. 1791; Willd., Sp. Pl. 1: 116. 1797; Vahl, Enum. Pl. 1: 209. 1804; Poir. in Lam., Encycl. Méth. Bot. 8: 844. 1808; J. E. Sm. in Rees, Cyclop., ed. London, 33 & ed. Philad., 35. 1816; H.B.K., Nov. Gen. & Sp. Pl. 2: 268, pl. 132. 1818; Vell., Fl. Flum. 17. 1825; A. St. Hil., Pl. Usuel. Bras. 1--4, pl. 40. 1826; Vell., Fl. Flum. Icon. 1: pl. 38. 1827; Cham., Linnaea 7: 252--254 & 771. 1832; E. Mey., Comm. Pl. Afr. Austr. 1: 275--277. 1835; Raf., Fl. Tellur. 2: 104. 1836; Endl., Gen. Pl. 1: 633--634. 1838; Harv., Gen. S. Afr. Pl., ed. 1, 269. 1838; Benth., Pl. Hartweg. 21. 1839; Meisn., Pl. Vasc. Gen. 2: 198. 1839; Maund & Henslow, Botanist 4: pl. 196. 1840; Hochst. in Schnitzl., Flora 1842, Beibl. 1: 144. 1842; Raf., Aut. Bot. 73. 1840; D. Dietr., Syn. Pl. 3: 370. 1843; Walp., Repert. 4: 11-12 & 38--39. 1845; Bot. Zeit. 3: 587. 1845; Gard. Chron. 495. July 19, 1845; Hochst., Flora 28: 68. 1845; Schau. in A. DC., Prodr. 11: 524--525, 556--569, & 572. 1847; Wight, Icon. Pl. Ind. Orient. 4 (3): pl. 1461. 1849; C. Gay, Hist. Fis. Chile Bot. 5: 25--26, Atlas 1: pl. 55. 1849; Sonder, Linnaea 23: 86. 1850; Schau. in Mart., Fl. Bras. 9: 195--197, pl. 33. 1851; Wittstein, Etymol.-bot. Handwörterb. 117 & 270. 1852; A. Gray, Amer. Journ. Sci., ser. 2, 16: 98. 1853; Torr. in Emory, Rep. U. S. & Mex. Bound. Surv. 2: 126. 1859; Bocq., Rev. Verbenac. 139, pl. 16. 1861--1863; Harv., Thes. Cap. 2: 57, pl. 190. 1863; Bocq., Adanson 3: 236. 1863; Lange, Ind. Sem. Hort. Haun. 31. 1870; Lange, Bot. Tidsk. 8: [ser. 2, 4:] 3--5, pl. 2. 1874; Benth. in Benth. & Hook. f., Gen. Pl. 2: 1132--1136 & 1144. 1876; Bot. Mag. 102:

pl. 6221. 1876; Vatke, *Linnaea* 43: 529. 1882; Oliv. in Hook., *Icon. Pl.* 15: 37, pl. 1446. 1883; A. Gray, *Syn. Fl. N. Amer.*, ed. 2, 2 (1): 334--335. 1886; S. Wats., *Proc. Amer. Acad. Sci.* 24: 68. 1889; Kuntze, *Rev. Gen. Pl.* 2: 502. 1891; Coult., *Contrib. U. S. Nat. Herb.* 2: 326. 1892; Jacks., *Ind. Kew.* 1: 327, 349, & 753. 1893; Jacks., *Ind. Kew.* 2: 504 (1894) and 2: 1178. 1895; Briq. in *Engl. & Prantl, Nat. Pflanzenfam.* 4 (3a): 144 & 153--154, fig. 59 A & B. 1895; Jacks., *Attempt Ascertain Actual Dates Publ. Rees Cycl.* 1895; *Engl., Pflanzenwelt Ost-afr. A:* 44. 1895; Kuntze, *Rev. Gen. Pl.* 3 (3): 250, 254, & 561. 1898; K. Schum. in *Just, Bot. Jahresb.* 26 (1): 396. 1900; Kuntze, *Jahrb. Königl. Bot. Gart. Berlin* 4: 271. 1900; Gürke, *Notizbl. Bot. Gart. Berlin* 3: 64--76. 1900; H. H. Rusby, *Bull. Torrey Bot. Club* 27: 80. 1900; J. G. Baker in *Thiselt.-Dyer, Fl. Trop. Afr.* 5: 281--282. 1900; Durand & Jacks., *Ind. Kew. Suppl.* 1: 61. 1901; H. H. W. Pearson in *Thiselt.-Dyer, Fl. Cap.* 5 (1): 199--207. 1901; Post & Kuntze, *Lexicon* 167. 1903; *Thiselt.-Dyer, Ind. Kew. Suppl.* 2: 28. 1904; Dalla Torre & Harms, *Gen. Siphonog.* 430. 1904; H. H. W. Pearson, *Trans. S. Afr. Philos. Soc.* 15: 176--180. 1905; Jacks., *Gloss. Bot. Terms* 219 & 247. 1905; Knuth, *Handb. Blütenbiol.* 3 (2): 72. 1905; Gürke ex Zahlbr., *Ann. K. K. Nat. Hofmus. Wien* 20: 45. 1905; Millsp., *Field Columb. Mus. Publ. Bot.* 2: 178. 1906; H. H. Rusby, *Bull. N. Y. Bot. Gard.* 4: 432. 1907; Dalla Torre & Harms, *Gen. Siphonog.* 673 & 715. 1907; Prain, *Ind. Kew. Suppl.* 3: 27. 1908; J. M. Wood, *Natal Pl.* 6: pl. 571. 1911; Glaz., *Bull. Soc. Bot. Franç. Mém.* 3: 543. 1911; Chiov., *Ann. Bot. Roma* 9: 127. 1911; Jacks., *Proc. Linn. Soc. Lond.* 124, *Suppl. Ind. Linn. Herb.* 149. 1912; Prain, *Ind. Kew. Suppl.* 4: 28. 1913; Herzog, *Meded. Rijks Herb. Leid.* 29: 46. 1916; Druce, *Rep. Bot. Soc. & Exch. Club Brit. Isles* 1916, *Suppl.* 2: 610. 1917; Prain, *Ind. Kew. Suppl.* 5: 35. 1921; A. W. Hill, *Ind. Kew. Suppl.* 6: 28. 1926; Grenz., *Ann. Mo. Bot. Gard.* 13: 71--100, pl. 8--19. 1926; Knuth in *Fedde, Repert. Beih.* 43: 603. 1927; Dinter in *Fedde, Repert. Beih.* 53: 53. 1928; Epling, *Journ. Bot.* 67: 12. 1929; Stapf, *Ind. Lond.* 1: 452. 1929; Stapf, *Ind. Lond.* 6: 429--431. 1931; Willis, *Dict. Flow. Pl. & Ferns*, ed. 6, 90. 1931; Grey & Hubbard, *List Plants Grow. Bot. Gard. Atkins Instit.* 31 & 244. 1933; Moldenke, *Phytologia* 1: 18. 1933; M. E. Jones, *Extr. Contrib. West. Bot.* 18: 67. 1933; Small, *Man. Southeast. Fl.* 1111 & 1517. 1933; A. W. Hill, *Ind. Kew. Suppl.* 8: 31. 1933; Moldenke in *Fedde, Repert.* 37: 214--216. 1934; Moldenke, *Torreya* 34: 8--9. 1934; Junell, *Symb. Bot. Upsal.* 4: 21--30, 172--173, & 213--214, figs. 29, 44, 46, 49, & 53. 1934; Briq., *Internat. Rules Bot. Nomencl.*, ed. 3, 24 & 106. 1935; Moldenke in *Fedde, Repert.* 41: 25 & 129--143. 1936; Lundell, *Carnegie Inst. Wash. Publ.* 478: 42, 75, 109, & 183. 1937; Dahlgren, *Svensk Bot. Tidsk.* 32: 231. 1938; A. W. Hill, *Ind. Kew. Suppl.* 9: 39. 1938; Moldenke in *Fedde, Repert.* 45: 113--156 & 300--319. 1938; Moldenke in *Fedde, Repert.* 46: 1--12. 1938; Moldenke, *Geogr. Distrib.* 1, 3, 4, 6--9, 11--13, 15, 16, 18--20, 22, 23, 25, 28, 29, & 35. 1939; Moldenke, *Carnegie Inst. Wash. Publ.* 522: 175--176. 1940; Moldenke in *Fedde, Repert.* 48: 16--29 & 49: 91--139. 1940; Moldenke, *Prelim. Alph. List Invalid Names*

7--8 & 24. 1940; Moldenke, Suppl. List Invalid Names 1. 1941; Moldenke, Alph. List Invalid Names 6--7 & 23. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 5, 12, 14--16, 19--22, 24--34, 36, 40--42, 71, & 86. 1942; Moldenke in Lundell, Fl. Texas 3 (1): 66--67. 1942; Moldenke, Phytologia 2: 93. 1944; Erdtman, Svensk Bot. Tidsk. 39: 281 & 283. 1945; Reko, Bol. Soc. Bot. Mex. 4: 35. 1946; Irmão Augusto, Fl. Rio Grande do Sul 217, 225--226, & 235. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 3. 1947; Salisb., Ind. Kew. Suppl. 10: 33. 1947; Moldenke, Known Geogr. Distrib., [ed. 2], 10, 21, 25, 26, 28, 34, 36, 38, 42, 46, 47, 49--52, 57--59, 62, 69, 75, 96, 102, 156, & 176. 1949; Razi, Ecology 31: 284. 1950; Salisb., Ind. Kew. Suppl. 11: 34. 1953.

Chamisso, founder of the genus, in Linnaea 7: 252--253 & 771 (1832) writes the name of the genus both "Bouchéa" and "Bouchea". He uses the former spelling at the head of his generic description and in the index, but in the generic portion of the binomials which he accepts, he uses the latter orthography. I am accepting the unaccented orthography, as has also been done by most workers since that date.

Necker in Elem. Bot. 1: 296 (1790) states that his genus Denisaea was named in honor of "Ludovicis Denis" [=Denis Dodart (1634--1707)]. Razi in Ecology 31: 284 (1950) states that seed dissemination in Bouchea is endozoic. The pollen morphology of the genus is compared critically with that of Chascanum by Erdtman in Svensk Bot. Tidsk. 39: 281 & 283 (1945).

BOUCHEA AGRESTIS Schau.

Synonymy: Bouchea agrestis Schau. & Mart. ex Schau. in Mart., Fl. Bras. 9: 197. 1851.

Literature: Schau. in A. DC., Prodr. 11: 558. 1847; Schau. in Mart., Fl. Bras. 9: 197. 1851; Jacks., Ind. Kew. 1: 327. 1893; Grenz., Ann. Mo. Bot. Gard. 13: 85. 1926; Moldenke, Geogr. Distrib. 25. 1939; Moldenke, Prelim. Alph. List Invalid Names 7. 1940; Moldenke in Fedde, Repert. 49: 92--94. 1940; Moldenke, Alph. List Invalid Names 6. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 36 & 86. 1942; Irmão Augusto, Fl. Rio Grande do Sul 235. 1946; Moldenke, Known Geogr. Distrib., [ed. 2], 75 & 176. 1949.

Additional citations: BRAZIL: Bahia: Blanchet 3731 [Macbride photos 7851, in part] (Kr--photo of cotype, N--photo of cotype), 3907 [Macbride photos 7851, in part] (Kr--photo of cotype, N--photo of cotype).

BOUCHEA BOLIVIANA (Kuntze) Moldenke

Synonymy: Valerianodes bolivianum Kuntze, Rev. Gen. Pl. 3 (2): 254. 1898. Stachytarpheta boliviana (Kuntze) K. Schum. ex Just, Bot. Jahresb. 26 (1): 396. 1900. Valerianoides boliviana Kuntze ex Thiseit.-Dyer, Ind. Kew. Suppl. 2: 190. 1904. Bouchea pseudogervae f. pilosa Herzog, Meded. Rijks Herb. Leid. 29: 46. 1916. Bouchea mollis Standl. ex Moldenke, Prelim. Alph. List Invalid Names 8, in syn. 1940. Valerianodes boliviana Kuntze ex

Moldenke, op. cit. 43, in syn. 1940.

Literature: Kuntze, Rev. Gen. Pl. 3 (3): 254. 1898; K. Schum. in Just, Bot. Jahresb. 26 (1): 396. 1900; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 190. 1904; Herzog, Meded. Rijks Herb. Leid. 29: 46. 1916; Moldenke, Phytologia 1: 18. 1933; Moldenke, Geogr. Distrib. 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 8, 41, & 43. 1940; Moldenke in Fedde, Repert. 49: 111--113. 1940; Moldenke, Lilloa 6: 313. 1941; Moldenke, Alph. List Invalid Names 7, 42, & 44. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 40 & 86. 1942; Moldenke, Lilloa 10: 339. 1944; Moldenke, Known Geogr. Distrib., [ed. 2], 96, 102, & 176. 1949.

Cárdenas has collected this species in sandy loam at 300 m. altitude and describes the flowers as blue. It has been misidentified in herbaria as "Stachytarpheta sp." and "Stachytarpheta cayennensis Vahl". In addition to the months recorded in my monograph, it has been collected in anthesis in December and February. The Rusby collection cited below, from the junction of the Beni and Madre de Dios rivers, was cited by me in Fedde, Repert. 49: 123 (1940) as B. fluminensis, but seems rather to belong here. The remaining specimens of this collection ought to be re-examined.

Additional citations: BOLIVIA: El Beni: H. H. Rusby 915, in part (C). Oriente: Cárdenas 2770 (F--756445). Santa Cruz: Cárdenas 4413 (N). ARGENTINA: Salta: D. Rodriguez 174 [Herb. Inst. Miguel Lillo 32439] (N); Schreiter 3516 [Herb. Inst. Miguel Lillo 32447] (N).

BOUCHEA BOYACANA Moldenke

Literature: Moldenke, Bull. Torrey Bot. Club 68: 498--499. 1941; Moldenke, Known Geogr. Distrib., [ed. 1], 31 & 86 (1942) & [ed. 2], 59 & 176. 1949.

The species has been found at altitudes of 1800 to 2130 m., on arid slopes, blooming in September.

Additional citations: COLOMBIA: Boyacá: Cuatrecasas 1017 (N--type), 1954 (F--1327946).

BOUCHEA CHASCANOIDES Moldenke

Literature: Moldenke, Phytologia 3: 58--59. 1949; Moldenke, Known Geogr. Distrib., [ed. 2], 75 & 176. 1949.

Additional citations: BRAZIL: Minas Geraes: Markgraf, Mello Barreto, & Brade 3399 [Herb. Jard. Bot. Rio de Jan. 40068] (F--photo of type, N--type, N--photo of type, Sg--photo of type, Z--photo of type).

BOUCHEA CIPOËNSIS Moldenke

Literature: Moldenke, Phytologia 3: 261--262 & 286. 1950.

Citations: BRAZIL: Minas Geraes: Mendes Magalhães 4313 [Herb. Jard. Bot. Belo Horiz. 45118] (N--type).

BOUCHEA DISSECTA S. Wats.

Synonymy: Bouchea dissecta var. violacea Rose ex Moldenke,

Prelim. Alph. List Invalid Names 7, in syn. 1940. Bouchea palmeri S. Wats. ex Moldenke, op. cit. 8, in syn. 1940.

Literature: S. Wats., Proc. Amer. Acad. 24: 68. 1889; Zoe 5: 219. 1900; Durand & Jacks., Ind. Kew. Suppl. 1: 61. 1901; Grenz., Ann. Mo. Bot. Gard. 13: 84. 1926; Moldenke, Geogr. Distrib. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 7 & 8. 1940; Moldenke in Fedde, Repert. 49: 124--126. 1940; Moldenke, Alph. List Invalid Names 6 & 7. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 15 & 86 (1942) & [ed. 2], 28 & 176. 1949.

Specimens of this species have been collected in shady dry llanos and fields, on hillslopes, and in pebbly slightly red soil, at altitudes offrom 200 to 960 m., blooming in August and September, fruiting in September. The flowers are described as pink, lavender, or blue. Gentry says that it grows "in scattered colonies, flowers bright-pink, falling before midday". Wiggins & Rollins describe it as an "erect annual". Hinton reports it as "very rare" in Guerrero, but "frequent" in Michoacán; in fact, he says "I have seen acres of it at Apatzingas, Mich." It has been misidentified in herbaria as Verbena supina L. and V. neomexicana (A. Gray) Small.

Additional citations: MEXICO: Guerrero: Hinton 6492 (Au, F--938031, Fs, Me, Me, N, Ur). Michoacán: Hinton 12019 (Au, Du--290384, N, N), 12062 (Gg--310913, N, N, N, N, N, N), 12114 (Au, N, N); W. C. Leavenworth 508 (N, Ur). Sinaloa: H. S. Gentry 6133 (Ge, N). Sinaloa or Nayarit: J. Gonzalez Ortega 96 [San Ignacio] (Me). Sonora: M. E. Jones 22361 (Po--152315); Edw. Palmer 259 (Pa--isotype); Shreve 6684a (Fs); Wiggins 7120a (Du--263364), 7262 (Du--263363, Mi), 7292 (Mi); Wiggins & Rollins 305 (Du--295053). State undetermined: Conzatti s.n. (Me); Sessé, Mociffo, Castillo, & Maldonado 117 ["98"] (F--844945).

BOUCHEA FLABELLIFORMIS M. E. Jones

Literature: M. E. Jones, Extr. Contrib. West. Bot. 18: 67. 1933; Moldenke, Geogr. Distrib. 13. 1939; Moldenke in Fedde, Repert. 49: 123--124. 1940; Moldenke, Known Geogr. Distrib., [ed. 1], 15 & 86 (1942) & [ed. 2], 28 & 176. 1949; Morton, Contrib. U. S. Nat. Herb. 29 (2): 114. 1945.

Additional citations: MEXICO: Baja California: M. E. Jones 27439 (N--photo of type, Po--192762--type, Z--photo of type).

BOUCHEA FLUMINENSIS (Vell.) Moldenke

Original publication: Bouchea fluminensis (Vell.) Moldenke, Alph. List Common Names 13 & 32, hyponym (Aug. 31, 1939); Geogr. Distrib. 22, 23, 25, 28, & 29, nom. nud. (Sept. 20, 1939); Prelim. Alph. List Invalid Names 8, 42, & 46, hyponym (March 17, 1940); Fedde, Repert. 49: 117. Dec. 20, 1940.

Synonymy: Verbena fluminensis Vell., Fl. Flum. 17 (1825), Icon. 1: pl. 38. 1827. Verbena pseudogervae A. St. Hil., Pl. Usuel. Bras. 1--4, pl. 40. 1826. Bouchea pseudogervae (A. St. Hil.) Cham., L. nnaea 7: 253. 1832. Bouchea pseudogervae (St.

Hil.) Cham. ex Schau. in A. DC., Prodr. 11: 556. 1847. Bouchea pseudo-gervao (St. Hil.) Cham. ex Jacks., Ind. Kew. 2: 1178. 1895. Verbena pseudo-gervao A. St. Hil. ex Jacks., loc. cit. 1178, in syn. 1895. Bouchea pseudogervao var. pubescens Mathews ex Moldenke, Prelim. Alph. List Invalid Names 8, in syn. 1940. Bouchea pseudo-gervao (St. Hil.) Cham. and Bouchea pseudogervao (St. Hil.) Schau. ex Moldenke, loc. cit. 1940. Stachytarpheta fluminensis A. DC. and Stachytarpheta grandiflora Pohl ex Moldenke, op. cit. 42, in syn. 1940. Stachytarpheta psilostachya A. DC. and Verbena leptostachys Mart. ex Moldenke in Fedde, Repert. 49: 117, in syn. 1940. Stachytarpheta alegrensis Loes. ex Moldenke, Suppl. List Invalid Names 7, in syn. 1941.

Literature: Vell., Fl. Flum. 17. 1825; A. St. Hil., Pl. Usuel. Bras. 1--4, pl. 40. 1826; Vell., Fl. Flum. Icon. 1: pl. 38. 1827; Cham., Linnaea 7: 253--254. 1832; Schau. in A. DC., Prodr. 11: 556--557 & 449. 1847; Schau. in Mart., Fl. Bras. 9: 195. 1851; Jacks., Ind. Kew. 1: 327 (1893) & 2: 1178. 1895; H. H. Rusby, Bull. N. Y. Bot. Gard. 4: 432. 1907; J. M. Wood, Natal Pl. 6: pl. 571. 1911; Molino, Not. Bot. 2: 102. 1923; Grenz., Ann. Mo. Bot. Gard. 13: 85. 1926; Moldenke, Alph. List Common Names 13 & 32. 1939; Moldenke, Geogr. Distrib. 22, 23, 25, 28, & 29. 1939; Moldenke, Prelim. Alph. List Invalid Names 8, 42, & 46. 1940; Moldenke in Fedde, Repert. 49: 117--123. 1940; Moldenke, Lilloa 6: 313--314. 1941; Moldenke, Suppl. List Invalid Names 7. 1941; Moldenke, Alph. List Invalid Names 7 & 42. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 33, 34, 36, 40--42, & 86 (1942) & [ed. 2], 69, 71, 75, 96, 100, 102, 156, & 176. 1949; Sampaio & Peckolt, Arquiv. Mus. Nac. Rio de Jan. 37: 392. 1943; Bol. Mus. Hist. Nat. Javier Prado 7: 244. 1943; Moldenke, Phytologia 2: 93. 1944; Moldenke, Lilloa 10: 339. 1944; Erdtman, Svensk Bot. Tidsk. 39: 281 & 283. 1945; Svenson, Amer. Journ. Bot. 33: 419 & 480. 1946; Irmão Augusto, Fl. Rio Grande do Sul 226, fig. 109. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 2. 1947; Rambo, Anais Bot. Herb. Barbosa Rod. 3: 72 & 78. 1951; Stellfeld, Trib. Farmac 19 (10): 169 & 172. 1951; F. C. Hoehne, Ind. Bibl. e Num. Pl. Col. Com. Rondon 347. 1951.

It is of interest to note that although Chamisso, when he founded this genus in Linnaea 7: 252 (1832), wrote the generic name "Bouchéa" -- and it is so written also in the index to the volume on p. 771 -- yet when he proposed the binomial Bouchea pseudogervao on p. 253 he did not use the accent. It is rather evident that he intended the accent mark only as an indication of how to pronounce the word, not as an integral part of the name itself.

The species is often described by collectors as a shrub about 1 m. tall, found growing on riverbanks, in forests, thickets, or matorral, at the edges of woods, among grass along sunny forest paths, and in open clay or limestone soil, at altitudes of 300 to 1000 m. It has been collected in anthesis in every month of the year from April through February, and in fruit in January. Klug (on the labels of his no. 2839) says that it was collected

"on tree", but if he means to imply by this that the plant was epiphytic or not is not clear. Killip & Smith describe it as an herb 3--5 feet tall, the main branches prostrate, the flowering branches erect, and the "corolla white at base, blue at apex" (no. 25023), "corolla-tube white to pale blue, lobes deep blue" (no. 23397), "corolla pinkish-blue, paler without" (no. 25001), or "corolla light blue" (no. 26625). Klug says of the corollas that they are "violet and white" (no. 4206), "light-blue" (no. 2839), or "white" (no. 3904). Oliveira, on the labels of both of his collections cited below, also describes the corolla as white. It is possible that these last three collections represent an albino form of the species and may be worthy of a form name. Other collectors have described the flowers as blue, violet, lilac, or pink, while Hoehne (Herb. Inst. Bot. S. Paulo 23307) calls them red. Sandeman says they are "Parme violet" and that the stems of the plant are purplish-brown. Svenson reports it as growing 2--4 feet tall, common in open places near sea-level, with purplish-pink flowers. Rojas calls it a subshrub 1--2 m. tall, with rose-lilac flowers. One spike of the Mello Barreto specimen cited below is conspicuously galled at the base, with fruit-like galls.

Notes on the pollen morphology of this plant are given by Erdtman in Svensk Bot. Tidsk. 39: 281 & 283 (1945). Svenson in Amer. Journ. Bot. 33: 480 (1946) states that the binomial, Bouchea fluminensis (Vell.) Moldenke, was first published in "Phytologia 1: 265. 1937", but this is an error, for the name does not appear there. Stellfeld reports that the plant is employed medicinally as a pectoral, but his "Bouchea fluminensis" in Trib. Farmac. 19 (10: 172 (1951) is actually Aloysia lycioides Cham. On the other hand, Irmão Augusto, Fl. Rio Grande do Sul 226, fig. 109 (1946) misidentified our plant as "Bouchea agrestis Mart. & Schau." It has often been misidentified as a species of Stachytarpheta. The Columbia University specimen of Rusby 915 has proved to be B. boliviana, so the rest of the material of this collection cited by me as B. fluminensis here and in Fedde, Repert. 49: 123 (1940) ought to be re-examined. The Troll 636 cited by me on the same page of my monograph as from "Department undetermined" is actually from Cochabamba, Bolivia. "Gervao de folha grande" and "gervao de folha larga" are recorded as common names.

Additional citations: ECUADOR: Guayas: Svenson 11498 (N). Loja: R. Espinosa 2311 (N). PERU: Cuzco: Soukup 800 (F--922336). Junin: Killip & Smith 23397 (F--632670), 25001 (F--616688), 25023 (F--632016), 26625 (F--616156); Sandeman 4970 (K); Soukup 2865 (N), 3419 (N, N). Loreto: Klug 2839 (F--685000, W--1457224). San Martín: Ferreyra 4500 (W--1998921), 4701 (W--1998959), 5078 (W--2028048), 7784 (W--2028466); Klug 3904 (F--766332, Gg--247837, W--1458310), 4206 (F--865683, S, W--1458629); Woytkowski 35004 (S). Department undetermined: Soukup 1137 (F--1011715). BRAZIL: Minas Geraes: F. C. Hoehne s.n. [Herb. Inst. Bot. S. Paulo 2767]

(Sp); Macedo 2044 (N, Ug); Mello Mattos s.n. [Herb. Rio de Jan. 46763] (Ja); Mexia 5268 (En, Gg--286695, W--1572302); J. E. Oliveira 231, in part (N), 1311 [Herb. Jard. Bot. Belo Horiz. 45101] (N); A. Saint-Hilaire 947 [Macbride photos 17583] (Kr--photo, N--photo); G. Santos s.n. [Herb. Rio de Jan. 46776] (Ja); Widgren 1218 (Br); L. O. Williams 6988 (G, N). Paraná: Dusén 3008 [Herb. Rio de Jan. 32302] (Ja), 7567 (Ca--501683), 9504 (G); F. C. Hoehne s.n. [Herb. Inst. Bot. S. Paulo 23307] (Sp). Rio Grande do Sul: Henz s.n. [Rambo 35480] (N); Eugenio Leite 638 (N); Rambo 37900 (N); Reineck s.n. [Macbride photos 17604] (Kr--photo, N--photo). Santa Catharina: F. C. Hoehne s.n. [Herb. Inst. Bot. S. Paulo 24423] (Sp); Reitz C.167 [S.F. 51360] (Rd). São Paulo: Edwall s.n. [Herb. Comm. Geogr. e Geol. 1751; Herb. Inst. Bot. S. Paulo 15640] (Sp); Löfgren s.n. [Herb. Comm. Geogr. e Geol. 1475; Herb. Inst. Bot. S. Paulo 15637] (Sp); Löfgren & Edwall s.n. [Herb. Comm. Geogr. e Geol. 2790; Herb. Inst. Bot. S. Paulo 15634] (Sp); A. Russel 200 [Herb. Inst. Bot. S. Paulo 20087] (Sp); A. Saint-Hilaire 789 (F--977108). State undetermined: Mello Barreto 10008 [Itamarandiba; Herb. Jard. Bot. Belo Horiz. 24111] (F--948140). BOLIVIA: El Beni: H. H. Rusby 915, in part (F--166116, Pa, Pr). La Paz: Krukoff 10461 (N). ARGENTINA: Jujuy: Dinelli s.n. [Herb. Inst. Miguel Lillo 32440] (N). Misiones: T. Rojas s.n. [Herb. Osten 8074] (Ug). Salta: D. Rodriguez s.n. [Herb. Mus. Argent. Cienc. Nat. 23987] (N). CULTIVATED: Brazil: Stellfeld 1227 [Herb. Mus. Parana. 2336] (N).

BOUCHEA FLUMINENSIS var. PILOSA Moldenke

Literature: Moldenke, Phytologia 2: 408. 1948; Moldenke, Known Geogr. Distrib., [ed. 2], 75, 102, & 176. 1949; Stellfeld, Trib. Farmac. 19 (10): 169. 1951.

This plant should not be confused with "Bouchea pseudogervae f. pilosa Herzog", based on Herzog 1504 from Santa Cruz, Bolivia, which is by me regarded as B. boliviana (Kuntze) Moldenke. Sandeman describes our plant as a weak-growing shrub with rosy-lilac flowers and ovate-acuminate, alternate, deeply serrate leaves, growing in shade and semi-shade, the flowers fading and dropping very rapidly after being gathered. Oliveira says it is a shrub 1 m. tall with white flowers. Henz found it at the edge of primeval forests in a region of 1.8 m. rainfall and 10--35° temperature. Schwarz describes the flowers as violet. It has been collected at altitudes of 120--200 m., flowering in January, February, May, and October.

Additional citations: BRAZIL: Minas Geraes: J. E. Oliveira 231, in part (N). Paraná: Hatschbach 745 (N). Rio Grande do Sul: Henz 35480 (S). ARGENTINA: Misiones: T. Meyer 11864 (N); Sandeman 4776 (K--type); G. J. Schwarz 3990 (N).

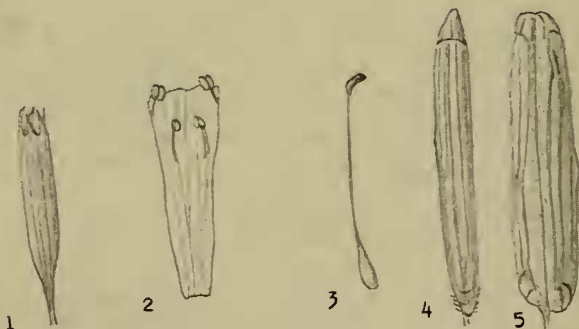
BOUCHEA INOPINATA Moldenke

Literature: Moldenke in Fedde, Repert. 37: 214--215. 1934; Moldenke, Geogr. Distrib. 25. 1939; Moldenke in Fedde, Repert. 49: 94--95. 1940; Moldenke, Known Geogr. Distrib., [ed. 1], 36 & 86 (1942) & [ed. 2], 75 & 176. 1949.

Additional citations: BRAZIL: State undetermined: Schüch s.n. [Macbride photos 34325] (F--976274--photo of type, Kr--photo of type, N--photo of type).

BOUCHEA LINIFOLIA A. Gray

Literature: A. Gray, Amer. Journ. Sci., ser. 2, 16: 98. 1853; Torr. in Emory, Rep. U. S. & Mex. Bound. Surv. 2: 126. 1859; Jacks., Ind. Kew. 1: 327. 1893; Coult., Contrib. U. S. Nat. Herb. 2: 326. 1894; Grenz., Ann. Mo. Bot. Gard. 13: 87. 1926; Cory, Texas Agr. Exp. Sta. Bull. 550: 88. 1937; Moldenke, Geogr. Distrib. 3 & 13. 1939; Moldenke in Fedde, Repert. 49: 127--129. 1940; Moldenke in Lundell, Fl. Texas 3 (1): 69--70. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 12, 15, & 86 (1942) & [ed. 2], 21, 25, 28, & 176. 1949; Erdtman, Svensk Bot. Tidsk. 39: 281 & 283. 1945.



1 -- calyx, x 2.1

2 -- corolla-tube spread open, x 2.1

3 -- pistil, x 2.1

4 -- coccus, dorsal view, x 5.6

5 -- schizocarp, lateral view, x 5.6

6 -- corolla and calyx, x 2.1



The species has been collected on shrub-covered valley-floors, blooming and producing fruit in July and September. Erdtman, in the reference cited on the previous page, points out that the pollen morphology of this species and of B. spathulata is so different from that of the rest of the species in the genus that these two may well constitute a separate subgenus. The Havard s.n. [W. of Taelingra], cited by me in Fedde, Repert. 49: 129 (1940) as from "County undetermined", is actually from Brewster County, Texas. The Clemens & Clemens 502 distributed as this species in the Pomona College herbarium is actually Verbena halei Small.

Additional citations: TEXAS: Presidio Co.: Tharp s.n. [Marfa, July 1928] (Mi, N, S), s.n. [Marfa-Shafter road, July 1928] (Au, Au, Au, Gg--316190, N). Sutton Co.: Parks & Cory 9966 (Tr). Uvalde Co.: E. J. Palmer 13007 (Gg--31963, Po--220203). Valverde Co.: Cory 3404 (Po--192295), 41687 (Au). NEW MEXICO: County undetermined: Le Roy s.n. (Pa). MEXICO: Coahuila: Herb. Inst. Biol. Univ. Nac. Mex. 7148, in part (Me); Wynd & Mueller 409 (Fs, Ur, Ur).

BOUCHEA NELSONII Grenz.

Synonymy: Bouchea nelsonii Greenm. ex Moldenke, Prelim. Alph. List Invalid Names 8, in syn. 1940.

Literature: Grenz., Ann. Mo. Bot. Gard. 13: 83--84. 1926; A. W. Hill, Ind. Kew. Suppl. 8: 31. 1933; Moldenke, Geogr. Distrib. 13 & 15. 1939; Moldenke, Prelim. Alph. List Invalid Names 8. 1940; Moldenke in Fedde, Repert. 49: 95--97. 1940; Moldenke, Alph. List Invalid Names 7. 1942; Moldenke, Known Geogr. Distrib. [ed. 1], 15, 19, & 86 (1942) & [ed. 2], 28, 34, & 176. 1949; Matuda, Amer. Midl. Nat. 44: 575. 1950.

This is said to be an erect herb, common in damp thickets and chaparral, at altitudes of 14 to 65 m., blooming in July, August, and October, fruiting in July and August. The flowers are described as pink or rose-purple.

Additional citations: MEXICO: Guerrero: Hinton 10862 (N); Webster, Rowell, & Barkley 17M718 (N). Oaxaca: G. L. Fisher 35472 (F--782580), s.n. [Ixtepac, Aug. 17, 1935] (Fs); Matuda 164 (Mi). GUATEMALA: Zacapa: P. C. Standley 74608 (N).

BOUCHEA NOTABILIS Moldenke

Literature: Moldenke in Fedde, Repert. 37: 215. 1934; Moldenke, Geogr. Distrib. 18. 1939; A. W. Hill, Ind. Kew. Suppl. 9: 39. 1938; Moldenke, Known Geogr. Distrib., [ed. 1], 31 & 86 (1942) & [ed. 2], 59 & 176. 1949.

BOUCHEA PRISMATICA (L.) Kuntze

Synonymy: Verbena spicata jamaicana Pluk., Alm. 382, pl. 32, fig. 1. 1696. Verbena prismatica L., Sp. Pl., ed. 1, 19. 1753. Verbena prismatica Jacq. ex Lam., Tabl. Encycl. Méth. Bot. 1: 59, in syn. 1791. Zapania prismatica (L.) Lam., Tabl. Encycl. Méth.

Bot. 1: 59. 1791. Stachytarpheta prismatica (L.) Vahl, Enum. Pl. 1: 209. 1804. Bouchea ehrenbergii Cham., Linnaea 7: 253--254. 1832. Lomake brachiata Raf., Aut. Bot. 73. 1840. Stachytarpha prismatica Vahl ex Schau. in A. DC., Prodr. 11: 572, in syn. 1847. Bouchea prismatica (L.) Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 154. 1895. Denisiaa prismatica (L.) Kuntze, Rev. Gen. Pl. 3 (2): 254. 1898. Bouchea prismatica (Jacq.) Kuntze ex Grenz., Ann. Mo. Bot. Gard. 13: 78. 1926. Valerianoides jamaicense Millsp. apud Standl., Field Mus. Publ. Bot. 3: 399, in syn. 1930 [not Valerianodes jamaicense (L.) Kuntze, 1891]. Bouchea prismatica (Jacq.) Kuntze ex Small, Man. Southeast. Fl. 1141. 1933. Bouchea ehrenbergii Cham. & Schlecht. and Bouchea ehrenbergii var. fol. lanceolatis Ervend. ex Moldenke, Prelim. Alph. List Invalid Names 7, in syn. 1940. Verbena bifurca Benth. ex Moldenke, op. cit. 44, in syn. 1940. Verbena prismatica Willd. and Verbena prismatifolia Pers. ex Moldenke, op. cit. 48, in syn. 1940. Fovearia prismatica (L.) L. C. Rich. ex Moldenke in Fedde, Repert. 49: 97, in syn. 1940. Bouchea ehrenbergii Cham. and Bouchea ervendbergii Schau. ex Moldenke, Suppl. List Invalid Names 1, in syn. 1941. Bouchea ehrenbergii Cham. ex Ramirez Cantu, Anal. Inst. Biol. Mex. 14: 406. 1943. Bouchea ehrenbergii Schau., Bouchea ehrenbergii Cham., Bouchea prismatica (L.) Kuntze, and Bouchea prismatica (L.) Kuntze ex Moldenke, Alph. List Invalid Names Suppl. 1: 3, in syn. 1947; Stachytarpheta prismatica L. ex Moldenke, op. cit. 21, in syn. 1947. Stachytarpheta prismatica R. & S., in herb.

Literature: Pluk., Alm. 382, pl. 32, fig. 1. 1696; L., Sp. Pl. ed. 1, 19. 1753; Jacq., Collect. 2: 301. 1788; Jacq., Icon. Plant. Rar. 2: pl. 208. 1788; Göt. Gel. Anzeig. 1600, Oct. 3, 1789; Lam., Encycl. Méth. Bot. 1: 59. 1791; Willd., Sp. Pl. 1: 116. 1797; Vahl, Enum. Pl. 1: 209. 1804; Poir. in Lam., Encycl. Méth. Bot. 8: 844. 1808; J. E. Sm. in Rees, Cyclop., ed. London, 33. 1816; Steud., Nom. Bot., ed. 1, 873. 1821; Cham., Linnaea 7: 253--254. 1832; Benth., Pl. Hartweg. 21. 1839; Raf., Aut. Bot. 73. 1840; Walp., Repert. 4: 11--12. 1845; Schau. in A. DC., Prodr. 11: 556 & 558. 1847; Torr. in Emory, Rep. U. S. & Mex. Bound. Surv. 2: 126. 1859; Bocq., Rev. Verbenac. pl. 16. 1863; A. Gray, Syn. Fl. N. Amer., ed. 2, 2 (1): 334. 1886; Kuntze, Rev. Gen. Pl. 2: 502. 1891; Fawcett, Prov. List Indig. Nat. Fl. Pl. Jamaica 30. 1893; Jacks., Ind. Kew. 1: 327. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 153--154, fig. 59 A & B. 1895; Jacks., Attempt Ascertain Actual Dates Rees Cyclop. 1895; Kuntze, Rev. Gen. Pl. 3 (3): 254. 1898; H. H. Rusby, Bull. Torrey Bot. Club 27: 80. 1900; Thiselet-Dyer, Ind. Kew. Suppl. 2: 28. 1904; Knuth, Handb. Blütenbiol. 3 (2): 72. 1905; Millsp., Field Columb. Mus. Publ. Bot. 2: 178. 1906; Britton & Millsp., Bahama Fl. 366. 1920; Grenz., Ann. Mo. Bot. Gard. 13: 78--80 & 90. 1926; Knuth in Fedde, Repert. Beih. 43: 603. 1927; Epling, Journ. Bot. 67: 12. 1929; Standl., Field Mus. Publ. Bot. 3: 399.

1930; Stapf, Ind. Lond. 6: 430. 1931; Grey & Hubbard, List Pl. Atkins Instit. 31. 1933; Carnegie Inst. Wash. Publ. 478: 42, 75, 109, & 183. 1937; Moldenke, Geogr. Distrib. 4, 6--9, 12, 13, 15, 16, 18, 20, 22, 25, & 35. 1939; Moldenke, Carnegie Inst. Wash. Publ. 522: 176--177. 1940; Moldenke in Fedde, Repert. 49: 97--104. 1940; Moldenke, Prelim. Alph. List Invalid Names 7, 8, 24, 44, 47, 48, & 55. 1940; Moldenke, Suppl. List Invalid Names 1 & 3. 1941; Moldenke, Alph. List Invalid Names 6, 7, 23, 24, 42, 45, 49, 50, & 57. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 14, 15, 19, 22, 24--28, 30--33, 36, 71, & 86. 1942; Ramirez Cantu, Anal. Inst. Biol. Mex. 14: 404--406. 1943; F. Miranda, Anal. Inst. Biol. Mex. 14: 414--415. 1943; Moldenke, Phytologia 2: 93. 1944; Erdtman, Svensk Bot. Tidsk. 39: 281--284, fig. 8. 1945; Hodge, Revist. Fac. Nat. Agron. 7: 313. 1947; Daniel, Verb. Cent. Antioq. 3. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 3 & 21. 1947; Moldenke, Known Geogr. Distrib., [ed. 2], 26, 28, 34, 38, 42, 46, 47, 49--52, 57--59, 62, 69, 75, 156, & 176. 1949.

Although Chamisso, when he proposed this genus, wrote the name "Bouchéa" at the head of his generic description and in the index of the volume, yet he wrote the name without an accent mark in the binomials which he proposed in the same article. It seems obvious, therefore, that he intended the accent mark merely to help indicate pronunciation and not as an integral part of the name. I am, therefore, not following Meissner [Plant. Vasc. Gen. 2: 198 (1839)] nor Walpers [Repert. 4: 11 (1845)] in retaining this orthography.

The species has been collected at altitudes of from 30 to 1230 m., blooming in June, July, October, and November, and fruiting in July, September, and November. The flowers are described by collectors as blue, lilac, pink, purple, lavender, clear-violet, and red-violet. Haught describes the species as an erect annual herb to 70 cm. tall, in open bush land, with light purplish-red flowers. Cuatrecasas says that it is a slender pale-green herb 1 m. tall, with lilac-blue flowers. Fosberg describes it as a weed in banana patches, wet river-bottoms, and pastures on adjacent slopes, with bright-purple flowers. The pollen morphology is discussed by Erdtman in Svensk Bot. Tidsk. 39: 281--284 (1945). The plant has also been found in moist soil on riverbanks and in waste soil along roadsides. Britton & Millspaugh call it the "narrow-fruited vervain", while Duque Jaramillo calls it "verbená blanca florí rosada".

The Kearney & Peebles 14439, cited below, is anomalous, and the Cuatrecasas 15347a is a mixture of this species and Stachytarpheta cayennensis (L. C. Rich.) Vahl. The Read s.n. [Alembique] cited by me in Fedde, Repert. 49: 102 (1940) as from "Province undetermined" is actually from Camaguey, Cuba, and the Botteri specimens [Cerro del Bongo], cited on page 104 of the same work, are probably from Cerro del Borrego, near Orizaba, Veracruz, Mexico. Specimens of this species have been misidentified in herbaria as Stachytarpheta jamaicensis (L.) Vahl.

Additional citations: ARIZONA: Santa Cruz Co.: Kearney & Peebles 14439 (N, To). MEXICO: Michoacán: W. C. Leavenworth 479 (Ld). Yucatán: G. F. Gaumer 1160 (Gg--163106); Gaumer & sons 1139 (Gg--160520). State undetermined: C. A. Ehrenberg 112 [Macbride photos 17582] (Kr--photo, N--photo). CUBA: Oriente: Alain & Chrysogone A.1083 (N); Clément 6123 (N). HISPANIOLA: Dominican Republic: Howard & Howard 9506 (N); Türkheim 2532 (F--298535, Io--70574). PUERTO RICO: A. A. Heller 6109 (F--129301); Sintenis 2117 (F--79580, Io--75558). ST. THOMAS: Eggers s.n. [St. Th. Novb. 80] (Pa). ST. CROIX: L. A. Ricksecker 409 (F--71061). WEST INDIES: Island undesignated: Krebs s.n. (Bz--17243). MARGARITA ISLAND: Miller & Johnston 205 (F--126784, Po--124013). COLOMBIA: Antioquia: Gutiérrez Villegas 1107 (Fn--3215, N); Tomas Alberto 58 (N), 885 (N); Toro Toro 1289 (Fn--1626). Atlántico: Elias 1068 (N). Bolívar: L. H. Bailey 265 (Ba); Engstedt 51 (S). Cundinamarca: Antonio C. s.n. [Apolinar-Maria 151] (F--1007406). Huila: H. L. Mason 13846 (W--2047920). Magdalena: Haught 4455 (N). Tolima: Cuatrecasas 10521 (W--1796545). Valle del Cauca: Cardiffosa Barriga, Murgueitio Posso, & Barkley 170916 (Fn--3224, N); Cuatrecasas 15347a (N), 22128 (N), 22696 (N), 22806 (F--1280036); Duque Jaramillo 1434 (F--1292587); Fosberg 20528 (N); Moldenke & Moldenke 19796 (Es, Mg, N, No, Ot, Sm); Pérez Arbeláez & Cuatrecasas 6444 (W--1774218); Toro Toro 324 (Fn--1625). VENEZUELA: Aragua: Lasser 847 [Herb. Nac. Venez. 12639] (Ve), 931 [Herb. Nac. Venez. 12638] (Ve). Carabobo: Saer d'Heguart 887 (N, W--1831270). Federal District: Moldenke & Moldenke 19564 (Lg, N); H. Pittier 7887 [Herb. Nac. Venez. 12637] (Ve), 9720 [Herb. Nac. Venez. 12641] (Ve). CULTIVATED: Spain: Collector undesignated 80 (Q).

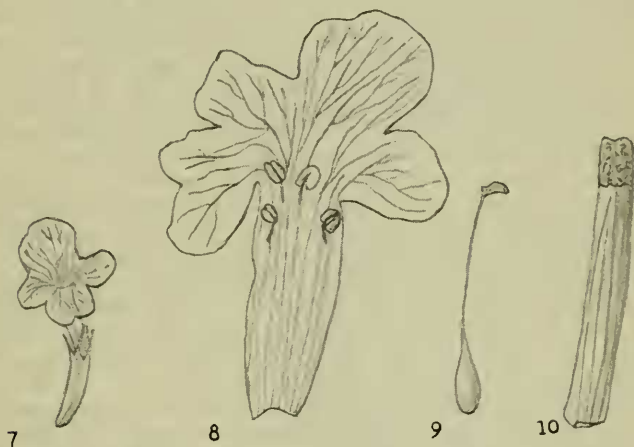
BOUCHEA PRISMATICA var. BREVIROSTRA Grenz.

Synonymy: Stachytarpheta bifurca Benth., Pl. Hartweg. 21.

1839. Stachytarpha bifurca Benth. ex Schau. in A. DC., Prodr. 11: 572, in syn. 1847. Melanthus bifurca Benth. ex Moldenke, Prelim. Alph. List Invalid Names 32, in syn. 1940. Zapania curassavica Pavon ex Moldenke, op. cit. 54, in syn. 1940 [not Z. curassavica (L.) Lam., 1791]. Zapania spinosa Pavon ex Moldenke, op. cit. 55, in syn. 1940. Escholtzia glabra Schmitz ex Moldenke in Fedde, Repert. 49: 104, in syn. 1940. Verbena diandra Sessé & Moc. ex Moldenke, Suppl. List Invalid Names 8, in syn. 1941.

Literature: Benth., Pl. Hartweg. 21. 1839; Walp., Repert. 4: 11. 1845; A. Gray, Syn. Fl. N. Amer., ed. 2, 2 (1): 334. 1886; Grenz., Ann. Mo. Bot. Gard. 13: 80--81. 1926; Moldenke, Geogr. Distrib. 4, 8, 11, 13, 15, 16, & 18. 1939; Moldenke, Prelim. Alph. List Invalid Names 32, 40, 41, 54, & 55. 1940; Moldenke in Fedde, Repert. 49: 104--107. 1940; Moldenke, Suppl. List Invalid Names 8. 1941; Calderón & Standl., Fl. Salvador., ed. 2, 235.

1941; Moldenke, Known Geogr. Distrib., [ed. 1], 12, 14, 15, 19, 21, 27, 29--32, & 86. 1942; Moldenke, Alph. List Invalid Names 33, 42, & 57. 1942; Moldenke in Lundell, Fl. Texas 3 (1): 67--68. 1942; Moldenke, Known Geogr. Distrib., [ed. 2], 21, 26, 28, 34, 38, 50, 55, 57, 59, & 176. 1949.



7 -- calyx and corolla, x 2.1

8 -- corolla spread open, x 5.6

9 -- pistil, x 2.1

10 -- coccus, x 5.6

11 -- calyx, x 5.6

This variety is by far the commonest and most widely distributed variety of the species in Mexico and Central America. It may be distinguished by the much shorter beaks on the cocci (only about 0.5 mm. long). Its leaf-blades are also usually noticeably smaller, more elliptic, more decidedly obtuse and rounded at the apex, and often falcate, and the plant is generally lower and more dwarfed in habit. It inhabits, according to collectors, hills, plains, llanos, roadsides in hilly places, scrub land, wet places on hilltops, black volcanic soil, and is found among boulders and



shrubby in sunny barrancas. It has been found at altitudes of from 1000 to 2470 m., blooming in February, July, August, September, and October, and in fruit from July to October. The vernacular name "shep-uón" has been recorded for it.

The flowers are described as reddish, pink, purple, or lavender, but the Lundells say that the corolla is lavender with a paler eye. Balls describes the plant as having single stems to 12 inches tall, branched at the top, with very small pale-mauve flowers borne in stiff narrow spikes to 3 inches long, growing on open stony hillsides. Webster, Rowell, and Barkley found it in gravel of crumbling granite on hillsides and in granitic soil on cliffs of sandstone and soft granite. Gentry reports that it grows in grama grassland on rolling plains of volcanic agglomerate and reddish-brown clay loams with pebble intrusions.

Specimens have been misidentified in herbaria as "Bouchea prismatica Kuntze", "B. prismatica (Jacq.) Kuntze", and "Stachytarpheta cajanensis Rich." Calderón & Standl., Fl. Salvador., ed. 2, 235 (1941), call it "Bouchea ehrenbergii Cham." In my Alph. List Invalid Names Suppl. 1: 16 (1947) I reduced Lomake brachiatata to the synonymy of this variety, but since Rafinesque states that the type specimen, not seen by me, is from Cuba, where this variety is unknown, I feel now that it should be reduced to the synonymy of the typical form of the species.

Additional citations: ARIZONA: Cochise Co.: Harrison, Kearney, & Hastings 6123 (To). Santa Cruz Co.: Harrison & Fulton 8175 (To); Peebles & Harrison 4698 (To); Shreve 7694 (Fs, Mi). MEXICO: Chihuahua: H. S. Gentry 8250 (N); LeSueur 91 (Au, F--837304), 136 (Au, F--837302, Gg--319697); Pringle 325 (F--104206, Ll, Pa, Up--17056, Up--17057, Vt), 994 (Me, Me, Vt); Shreve 9093 (Fs, Mi); E. Wilkinson s.n. [18 Aug. 1885] (Ob--50621). Durango: H. S. Gentry 8321 (N); Hernández Xolocotzi, Rubert, & Guevara X. 2616 (N); Edw. Palmer 416 (F--51497, Me, Me); Patoni 268 (Me); Shreve 9162 (Mi). Federal District: Balls 5212 (W--1793794); G. L. Fisher s.n. [Tlalpam, Aug. 3, 1924] (Cm, Hp); E. Lyonnet 2336 (W--1790972); Matuda 19070 (N), 21703 (N), 21869 (N); Née 101 (Q); Pringle 7941 (F--120306, Vt); Schmitz s.n. [circa urbem Mexici; Herb. Reichenbach f. 131217] (V); Zamora, Paxson, & Barkley 16M902 (Au, N). Guanajuato: Yates & Wilcox 90 (Ak--31230). Hidalgo: Herb. Inst. Biol. Univ. Nac. Mex. 7148, in part (Me); Lundell & Lundell 12185 (Id); H. E. Moore 1508 (N). Jalisco: Barkley, Webster, & Rowell 7579 (N), 7642 (N); Edw. Palmer 261 (Pa, Sg--68282). México: Berlandier 838 (Du--166399); Hinton 6368 (Ca--586452, F--878891). Michoacán: Arsène 4 (F--387214), 2857 (Ur), 8489 (F--484976, Ur); Hinton 12998 (Au, N, Oa--6699), 13036 (F--959188), 13968 (Au, N, N); Kenoyer s.n. [Morelia, 8-18-33] (Fs). Oaxaca: Galeotti 765 (Br); Herb. Inst. Biol. Univ. Nac. Mex. 7148, in part (Me); Rowell, Webster, & Barkley 17M488 (N); Silvio & Conzatti 3577 (Me); L. C. Smith 747 (Me); Webster, Rowell, &

Barkley 17502 (Au). Puebla: Purpus 3405 (F--276345). Querétaro: Arsène 9997 (F--485079); Barkley, Rowell, & Paxson 737 (N); Barkley, Webster, & Paxson 697 (N); Rose, Painter, & Rose 9570 (F--634832). San Luis Potosí: Parry & Palmer 716 (Io, Pa), 722 1/2 (Io, Pa). Sonora: Wiggins 7055 (Mi). Tamaulipas: Stanford, Lauber, & Taylor 2302 (N). State undetermined: Sessé, Mociffo, Castillo, & Maldonado 32 (F--844970), 33 (F--344969), 123 ["82"] (F--846418). GUATEMALA: Huehuetenango: Seler & Seler 3072 (Du--283751, Gg--242729); Steyermark 51588 (F--1199192). ST. THOMAS: L. H. Bailey 13 (Ba). BARBADOS: Bot. Stat. Herb. Barbados 79 (F--200788). COLOMBIA: Boyacá: Cuatrecasas 9678 (N). Santander: Araque Molina & Barkley 261 (N).

BOUCHEA PRISMATICA var. LACINIATA Grenz.

Synonymy: Verbena laciniata Sessé & Moc. ex Moldenke, Prelim. Alph. List Invalid Names 47, in syn. 1940 [not V. laciniata (L.) Briq., 1904, nor Kuntze, 1942]. Bouchea ehrenbergii var. fol. laciniatis A. Gray ex Moldenke in Fedde, Repert. 49: 110, in syn. 1940. Verbena laevigata Sessé & Moc. ex Moldenke, Suppl. List Invalid Names 9, in syn. 1941.

Literature: Grenz., Ann. Mo. Bot. Gard. 13: 80. 1926; Moldenke, Geogr. Distrib. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 47. 1940; Moldenke in Fedde, Repert. 49: 109--110. 1940; Moldenke, Suppl. List Invalid Names 9. 1941; Moldenke, Alph. List Invalid Names 48. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 16 & 86 (1942) & [ed. 2], 28 & 176. 1949.

The plant is said by Hinton to grow to 1 m. tall. Ferris & Mexia describe it as a roadside weed with pink flowers.

Additional citations: MEXICO: Guerrero: Hinton 10605 (F--937973). Sinaloa: Ferris & Mexia 5194 (Du--150657). State undetermined: Sessé, Mociffo, Castillo, & Maldonado 125 ["91"] (F--844943).

BOUCHEA PRISMATICA var. LONGIROSTRA Grenz.

Literature: Millsp., Field Columb. Mus. Publ. Bot. 2: 178. 1906; Grenz., Ann. Mo. Bot. Gard. 13: 81--82. 1926; Moldenke, Geogr. Distrib. 3, 4, 6, 7, 13, 15, 19, & 20. 1939; Moldenke, Carnegie Inst. Wash. Publ. 522: 177. 1940; Moldenke in Fedde, Repert. 49: 107--109. 1940; Moldenke, Known Geogr. Distrib., [ed. 1], 5, 16, 20, 24--27, 30--32, & 86. 1942; Moldenke, Phytologia 2: 93. 1944; Moldenke, Known Geogr. Distrib., [ed. 2], 10, 28, 36, 42, 46, 47, 49, 58, 59, 62, & 176. 1949.

The variety has been collected along roadsides, in waste and ballast land, in old fields, and as a weed in orange groves, at altitudes of from 10 to 1265 m., in flower in January and from June through October, and in fruit in January, March, and from June through September. The flowers are described by collectors as blue, pink, purple, and light-purple. Edwards says that the corollas drop very quickly. Harris and Eyerdam describe the plant

as a roadside weed. Leavenworth says it is a pink-flowered herb growing in moist soil along riverbanks. Pittier states that it forms colonies in fertile places and waste land along roadsides. Specimens have been misidentified in herbaria as B. prismatica and as "Bouchea ehrenbergii Cham.", "Bruechea prismatica (L.) Kuntze", "Buechea prismatica (L.) Kuntze", "Stachytarpheta jamaicensis (L.) Vahl", "Stachytarphaeta jamaicensis (L.) Vahl", "Stachytarpheta jamaicensis L.", "Stachytarpheta prismatica L.", and "Stachytarpheta prismatica Vahl".

The Hinton 12050 cited below has quite the general aspect of B. nelsonii, but the beaks on the cocci are not quite elongated enough for that species. The C. Wright 3660 cited by me in Fedde, Repert. 49: 108 (1940) as from "Province undetermined" is actually from Las Villas, Cuba. The Curtiss s.n. [Havana, May 11], also cited below, is incorrectly referred to by Grenzebach in her monograph as "Curtiss & West".

Because of their historic importance, the two specimens from Linnaeus' herbarium cited below are described in full as to their annotations: The Jamaican specimen has no annotation on the front, but on the back of the sheet one finds "Linné herb." in pencil, "Jamaica" in ink (in one handwriting), "Bouchea Ehrenbergii Cham." (in a second handwriting) also in ink, and, likewise in ink, "Stachytarpheta prismatica Vahl R. & S." in a third handwriting. Finally, also in ink, in a handwriting that seems to be that of Linnaeus himself, the number "12". The second specimen has on the front side of the sheet, on top, in ink the word "Verbena", and, near the bottom, in pencil "Verb. 4. prisma. Sp. pl. 19 = Bouchea Ehrenbergii Cham. in Linnaea" and in ink (in what appears to be Linnaeus' own handwriting) "prismatica 4", followed in ink (in another handwriting) "autogr. divi Linnaei". On the reverse side of the sheet one finds in pencil "Linné herb." and in ink (in Linnaeus' own handwriting) "Plum. phyt. 70. f. 1" and also in ink (in another handwriting) "autogr. divi Linnaei". This is followed in ink (in still another handwriting) "Verbena diandra, spicis laxis, calycibus alternis prismaticis truncatis aristatis, foliis ovatis obtusis. Linn. Spec. plant. 19.4", and, also in ink (in an unknown handwriting, apparently of later date) "Bouchea Ehrenbergii Cham." This is followed in ink, in still another unknown hand, "Stachytarpheta prismatica R. & S. (Verbena prismatica Linn.-Willd.)".

Additional citations: ALABAMA: Mobile Co.: Mohr s.n. [Mobile, Sept. 1883] (Mi), s.n. [Ballast grounds, Estuary, Mobile river, Oct. 1883] (Vt), s.n. [Oct. 8, 1883] (Du--90904). MEXICO: Guerrero: Hernández Xolocotzi & Alexander 111 (N). Hidalgo: M. T. Edwards 758 (Au, F--918303); Kenoyer 513 (F--914820); H. E. Moore 1826 (N). Michoacán: Hinton 12050 (N); W. C. Leavenworth 479 (N, Ur). Sinaloa: Mexia 107 (Gg--141891). BAHAMAS: Britton & Brace 782 (F--172065); Britton & Millspaugh 5796 (F--198598). CUBA: Camagüey: Acuña 13781 (Es). Havana: Baker & Wilson 524 (F--

185397); Boldo 86 (Q); Curtiss s.n. [Havana, May 11] (F--184863); Shafer 190 (Cm). Las Villas: Alain A. 1535 (N); Combs 154 (Io--33758, Ka--61156); Pringle 14 (Vt); C. Wright 3660 (Pa). Oriente: Clément 2765 (Ha, N); Shafer 1364 (F--284855). Province undetermined: C. Wright s.n. [1865; Herb. Sauvalle 1745] (Hv). JAMAICA: W. Harris 11792 (F--438808--isotype, Gg--31962--isotype), s.n. [Aug. 12, 1897] (F--145416); Herb. Linnaeus s.n. (F--photo, N--photo, S, Sg--photo, Z--photo); Masson s.n. [1782] (S). HISPANIOLA: Haiti: Eyerdam 29 (Se--20822). PUERTO RICO: Britton, Cowell & Brown 5378 (F--451536). COLOMBIA: Atlántico: Durand & Garcia Barriga 2352 (Jc), 2372 (W--1778988), 2540 (W--1778994). Bolívar: Araque Molina & Barkley 19Bo004 (N). VENEZUELA: Bolívar: Holt & Gehriger 174 [Herb. Nac. Venez. 12640] (Ve). Federal District: H. Pittier 7887 (Du--297833, Gg--311); Vogl 559 (N). Mérida: E. Reed 587 (N). LOCALITY OF COLLECTION UNDESIGNATED: Herb. Linnaeus s.n. (F--photo, N--photo, S, Sg--photo, Z--photo); Herb. Swartz s.n. (S).

BOUCHEA PSEUDOCHASCANUM (Walp.) Grenz.

Synonymy: Stachytarpheta pseudochascanum Walp., Repert. 4: 11. 1845. Bouchea laetevirens Schau. in A. DC., Prodr. 11: 557--558. 1847. Bouchéa incrassata Lange, Ind. Sem. Hort. Haun. 31. 1870. Stachytarpheta azureo-nigra Hort. ex Lange, Bot. Tidssk. 8: [ser. 2, 4:] 3, in syn. 1874. Stachytarpha pseudo-chascanum Walp. ex Schau. in A. DC., Prodr. 11: 572, in syn. 1847. Stachytarpha pseudochascanum Walp. ex Schau. in Mart., Fl. Bras. 9: 196, in syn. 1851. Bouchea incrassata Lange ex Jacks., Ind. Kew. 1: 327. 1893.

Literature: Walp., Repert. 4: 11. 1845; Schau. in A. DC., Prodr. 11: 557--558. 1847; Schau. in Mart., Fl. Bras. 9: 196 & 307. 1851; Lange, Ind. Sem. Hort. Haun. 31. 1870; Lange, Bot. Tidssk., 8: [ser. 2, 4:] 3--5, pl. 2. 1874; Jacks., Ind. Kew. 1: 327. 1893; Grenz., Ann. Mo. Bot. Gard. 13: 85--86. 1926; Junell, Symb. Bot. Upsal. 4: 21--30 & 172--176, figs. 29, 44, 46, 49, & 53. 1934; Dahlgren, Svensk Bot. Tidsk. 32: 231. 1938; Moldenke, Geogr. Distrib. 25 & 35. 1939; Moldenke, Prelim. Alph. List Invalid Names 7, 41, & 42. 1940; Moldenke in Fedde, Repert. 49: 114--117. 1940; Moldenke, Alph. List Invalid Names 6 & 42. 1942; Moldenke, Known Geogr. Distrib., [ed. 1], 36, 71, & 86 (1942) & [ed. 2], 75, 156, & 176. 1949; Moldenke, Phytologia 2: 93. 1944.

The gynoeceum morphology of this species is discussed by Junell in the reference cited above. The species has been collected in flower and fruit in October.

Additional citations: BRAZIL: Federal District: Alston & Lutz 147 (N); Moldenke & Moldenke 19597 (N, Ot, Sm). CULTIVATED: Java: Herb. Hort. Bot. Bogor. XVK.A.XLV.14 (Bz, Bz--26441, N).

BOUCHEA RUSBYI Moldenke

Synonymy: Bouchea incisa Rusby, Bull. N. Y. Bot. Gard. 4: 432.

1907 [not B. incisa H. H. W. Pearson, 1905].

Literature: H. H. Rusby, Bull. N. Y. Bot. Gard. 4: 432. 1907; Prain, Ind. Kew. Suppl. 4: 28. 1913; Grenz., Ann. Mo. Bot. Gard. 13: 86--87. 1926; Moldenke, Torreya 34: 8. 1934; Moldenke, Geogr. Distrib. 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 7. 1940; Moldenke in Fedde, Repert. 49: 113--114. 1940; Moldenke, Lilloa 6: 314. 1941; Moldenke, Known Geogr. Distrib., [Ed. 1], 40 & 86. 1942; Moldenke, Alph. List Invalid Names 6. 1942; Moldenke, Phytologia 2: 93. 1944; Erdtman, Svensk Bot. Tidsk. 39: 281. 1945; Moldenke, Known Geogr. Distrib., [ed. 2], 96 & 176. 1949.

This plant is described by Buchtien as a shrub 1.5 m. tall, with blue-violet flowers, and by Steinbach as a shrub 80 cm. tall, with lilac flowers. Its pollen morphology is discussed by Erdtman in the reference cited above. It has been collected at altitudes of 400 to 1700 m., blooming in January and April. The common names "verbena de flor grande" and "verbena de flos grande" have been recorded for it, and herbarium specimens have been misidentified as "Acanthaceae". The Chicago specimen of Killip & Smith 25001 exactly matches the isotype of B. rusbyi in that herbarium. The remaining specimens of this collection ought, therefore, to be re-examined as they may actually represent this species instead of B. fluminensis.

Additional citations: BOLIVIA: El Beni: Buchtien 8183 (La, N). Santa Cruz: Steinbach 5587 [Herb. Osten 16813] (Ug). Department undetermined: M. Bang 2226 (Bz--17242--isotype, Cm--isotype, F--78035--isotype, Pa--isotype).

BOUCHEA SPATHULATA Torr.

Synonymy: Bouchea spatulata Torr. ex Moldenke, Prelim. Alph. List Invalid Names 8, in syn. 1940.

Literature: Torr. in Emory, Rep. U. S. & Mex. Bound. Surv. 2: 126. 1859; A. Gray, Syn. Fl. N. Amer., ed. 2, 2 (1): 335. 1886; Coult., Contrib. U. S. Nat. Herb. 2: 326. 1892; Jacks., Ind. Kew. 1: 327. 1893; Grenz., Ann. Mo. Bot. Gard. 13: 87--88. 1926; Moldenke, Geogr. Distrib. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 8. 1940; Moldenke in Fedde, Repert. 49: 126--127. 1940; Moldenke, Known Geogr. Distrib., [ed. 1], 12, 16, & 86. 1942; Moldenke in Lundell, Fl. Texas 3 (1): 68--69. 1942; Moldenke, Alph. List Invalid Names 7. 1942; Erdtman, Svensk Bot. Tidsk. 39: 281. 1945; Moldenke, Phytologia 2: 154. 1948; Moldenke, Known Geogr. Distrib., [ed. 2], 21, 28, & 176. 1949; McDougall & Sperry, Pl. Big Bend Nat. Park 146. 1951.

The pollen morphology of this species is discussed by Erdtman in the reference cited above. The species has been collected in anthesis in June and October. Hanson reports it infrequent in canyons. Hinton says it grows to about 80 cm. tall in small colonies on arid limestone hillslopes and has odorous purple flowers. McDougall & Sperry describe it as a low branching shrub occurring in dry canyons and on open rocky dry ridges and mountain-sides.